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W. W. CORY, DEPUTY MINISTER)

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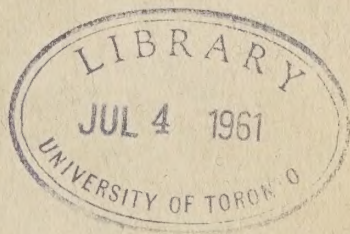
F. H. PETERS, Director

BULLETIN 58

THE
MARCH OF THE COMPASS
IN CANADA

AND DAILY VARIATION TABLES

By W. H. HERBERT, B.Sc., Magnetician



OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1926

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INTRODUCTION

Although the magnetic compass has been in common use for more than 700 years, it is more widely used to-day than ever before. It is used on land surveys in certain parts of the country, and in surveying timber berths, mineral claims, mine galleries, railroad locations, etc. It is widely used in geological surveying and exploration, and in the location and development of deposits of magnetic iron ore, and other investigations of the geologist.

Practically all vessels are equipped with one or more compasses, and the courses to be sailed from port to port are accurately laid down, for coastwise as well as for overseas travel. Even the limited number of vessels equipped with gyro-compasses carry magnetic compasses as well.

The compass is as necessary to the airman as to the mariner, and a special form of instrument has been devised for his use.

For the explorer the compass is still indispensable. It is the guide of pioneers and settlers, prospectors and miners, timber cruisers and travellers, hunters and trappers, campers and tourists; and the not infrequent reports of persons being lost in forests of small extent or in hilly districts show that it is a wise precaution to take a compass for even short departures from the beaten path.

On the seas, on the earth, above the earth and under the earth it is used for finding direction; and with so many matters of everyday occurrence directly affected by the compass, it is very important that the latter should be thoroughly understood.

Now, the compass has three main characteristics, as follows:—

1. The compass as a rule does not point north, but more or less to the east or west at different places. The deviation from the true north-south direction is called the “declination” of the compass.

2. The declination at any place does not remain the same from year to year, but changes, more or less, at different places. This yearly change is called the “secular variation,” or the “march” of the compass.

3. The declination does not remain the same at any one place throughout the day, but changes more or less from hour to hour and from place to place. This change is called the “diurnal inequality,” or the “daily variation” of the compass.

That the compass points in quite different directions at different places may be clearly seen from the following list applying at present to some places in Canada:—

Place	Direction of Compass
Ungava Bay.....	45 degrees west of north
Charlottetown, P.E.I.....	25 “ “
Halifax, N.S.....	23 “ “
St. John, N.B.....	22 “ “
Quebec, P.Q.....	19 “ “
Montreal, P.Q.....	18 “ “
Ottawa, Ont.....	14 “ “
Toronto, Ont.....	7 “ “
Orient, Ont.....	True North
Winnipeg, Man.....	13 degrees east of north
Regina, Sask.....	18 “ “
Victoria, B.C.....	24 “ “
Vancouver, B.C.....	25 “ “
Calgary, Alta.....	25 “ “
Edmonton, Alta.....	27 “ “
Peace River, Alta.....	31 “ “
Fort McPherson, N.W.T.....	44 “ “

This peculiarity of the compass is caused by the fact that the earth itself behaves as a huge magnet whose magnetic poles do not coincide with its geographical poles; for the north magnetic pole is situated near Boothia peninsula on the Arctic coast of Canada; and the south magnetic pole in South Victoria Land, south from New Zealand. The compass needle is, of course, attracted to the magnetic pole, not to the geographic or true pole.

A knowledge of this declination of the compass is of such great practical value that all countries make magnetic surveys as a matter of course and it is quite apparent that such information is particularly valuable in such a large new country as Canada.

The work of measuring the declination was commenced at a very early date in Canada, for we find that Samuel de Champlain measured it at Halifax, 1604; Padre Bressani at Quebec, 1642; Capt. William Baffin in Baffin Land, 1616; Capt. Middleton at Churchill and York Factory on Hudson Bay, 1725; while Capt. Cook, 1778, and Capt. Vancouver, 1792, made these measurements along the Pacific coast. In the interior, Sir John Franklin, 1819-26, and Sir John H. Lefroy, 1843-46, carried out similar measurements; but the work accomplished was very small for such a large country.

Now on the numerous and extensive surveys made throughout the country by this Survey, the astronomical bearings are determined with precision; and it was seen that if the survey parties were equipped with magnetic instruments a magnetic survey might be carried out at practically no expense by being made in conjunction with the regular work and utilizing the bearings already determined. In 1880 a magnetic survey of Canada was accordingly commenced, and already more than 21,000 observations have been made.

In order to make these results readily available to the public as soon as possible after the measurements in the field, and in the most convenient and accessible form, the custom universally followed in other countries of publishing magnetic maps has been followed by this Survey. These maps are compiled not only from the results of this Survey but also all the observations available from all other sources. They are issued at five-year intervals, as is done in other countries, for the purpose of bringing them up to date and for incorporating all the new measurements made in the preceding five-year period. Of recent years they have been published for 1907, 1912, 1917 and 1922. The latest magnetic map published, that for 1922, may be obtained from the Director, Topographical Survey Branch, Dept. of the Interior, Ottawa, price five cents.

In order to keep the declination measurements up to date for making magnetic maps and preventing them from becoming obsolete, when the whole work would have to be done over again, corrections have necessarily had to be applied to compensate for the march of the compass, and for this purpose this Survey has from time to time compiled various tables covering the march of the compass at different places.

For nearly all the early land surveys in Canada, the boundaries were defined in the deeds by compass bearings, as is still the case in certain places; and it has been the custom to define the boundaries of mineral claims, timber berths, etc., in a like manner. In order to be able to retrace and re-establish these old boundaries, and in order to co-ordinate and tie together old surveys made at various dates, it is necessary to know the march of the compass; and a great deal of such practical information has been supplied from time to time to provincial authorities, surveyors, commercial firms, etc.

While the daily variation can ordinarily be neglected for the class of work done with a compass, yet where as great accuracy as possible is desired, it should be taken into account. The difference in declination between morning and afternoon may easily amount to ten minutes, an angle which subtends an arc of fifteen feet at a distance of a mile. It was therefore thought desirable, for the

same reasons as those named for publishing tables of the march of the compass in Canada, to include also tables of the daily variation of the compass in Canada so that with the magnetic maps published by this Survey, already mentioned, the present publication would supply complete information for compass users for most of the country.

The publications of the United States Coast and Geodetic Survey have been freely consulted in preparing the present bulletin.

THE MARCH OF THE COMPASS IN CANADA

As already mentioned in the Introduction, the compass not only points in a different direction at each place, as is shown on the magnetic maps published by this Survey, but at each place it changes its direction from year to year in a different manner, which is called the "march" of the compass. It marches to the westward for many years, then turns backward and marches to the eastward, then reverses again and marches to the westward, etc., in a most confusing manner, as may be clearly seen from the following table, computed for Sydney, N.S.

Date	Declination	Date	Declination
1750.....	16° 24' W. of N.	1850.....	24° 17' W. of N.
1760.....	17 04 "	1860.....	25 07 "
1770.....	17 49 "	1870.....	25 24 "
1780.....	18 47 "	1880.....	25 19 "
1790.....	20 14 "	1890.....	25 03 "
1800.....	21 17 "	1900.....	25 01 "
1810.....	22 07 "	1905.....	25 10 "
1820.....	22 51 "	1910.....	25 35 "
1830.....	23 09 "	1915.....	25 54 "
1840.....	23 34 "	1920.....	26 02 "
		1925.....	26 04 "

It is not known what causes this march of the compass. It may be due to a shifting of the magnetic poles or to changes within the earth itself or to some effect of the sun or planets. But although the march of the compass cannot be explained and cannot be predicted for even a few years, it can be and is regularly measured by this Survey.

While the march of the compass is affected somewhat by local conditions, such as the presence of local disturbances, the data are not as yet sufficiently extensive or detailed to permit more than an approximate representation of average conditions. There are very few stations for which there are accurate results as early as 1850, and it has not been possible as a rule to make repeat observations at the exact spot at which the early observations were made, because the older stations were not marked or they have been obliterated or built upon owing to the rapid progress of the country.

The tables were computed principally from repeat observations made by this Survey, but all repeat observations available from other sources were used also, including the following: the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, the Dominion Observatory, the United States Coast and Geodetic Survey, the Meteorological Service of Canada, the Geological Survey of Canada, the Hydrographic Survey of Canada, Sir John Franklin, Sir J. H. Lefroy, Sir George Back, Dr. Rae, Thomas Simpson, Esq., Sir John Richardson, Sir John Ross, Sir E. W. Parry, etc., etc.

Valuable data were also obtained from L. V. Rorke, Esq., Director of Surveys for Ontario; F. X. Lemieux, Esq., Deputy Minister of the Department of Lands and Forests, Quebec; W. E. McMullen, Esq., Department of Lands and Mines, New Brunswick; F. A. Harrison, Esq., Deputy Commissioner of

Crown Lands, Nova Scotia; and T. May, Esq., Provincial Government Office, Prince Edward Island; while many very valuable data for the Gulf of St. Lawrence were kindly supplied by the Hydrographer of the Admiralty, England.

The general features of the march of the compass appear to change with comparative uniformity in passing across the country, and this has been the fundamental idea in computing a homogeneous set of tables from somewhat scanty data. The results at all the repeat stations in a limited area were combined to obtain a table of values representing approximately the average march of the compass for that area.

A careful adjustment of all these tables was then made for the whole country, and from these adjusted tables other tables were computed for particular places, so as to agree with the data available for those places. These tables were also carefully tied in with the tables computed by the United States Coast and Geodetic Survey for places in the north of the United States and in Alaska adjoining Canada; so that the tables computed by this Survey form an important part of a set of homogeneous tables covering most of North America.

It will be seen that while a table gives *directly* the declination at different times for only one place, it represents with almost the same accuracy the *change* in declination at any place within a reasonable distance.

Whenever it is necessary to retrace an old boundary line run by compass and there is a well-defined line in the vicinity known to have been established with the same compass at about the same time as the old lost boundary line in question, the best method is to determine the amount of change in the compass bearing of the well-defined line and use it to obtain the present compass bearing of the old lost boundary line. This method will result in the elimination of possible errors in both compasses. Only in the absence of such definite information is the use of the following tables recommended.

In employing these tables, the uncertainties formerly incident to the use of the compass must be borne in mind, for even at the present time some compasses are in error by as much as a quarter of a degree owing to imperfect construction or lack of proper care, and a century ago the state of affairs was probably much worse. Consequently, some of the magnetic bearings on old plans are not very accurate, and in some cases it may happen that the tables do not give the same value for the march of the compass as that given by the difference between the old magnetic bearing of the line as shown on a plan and the present day magnetic bearing of the same line.

The tables are intended to give the actual march of the compass, eliminating so far as possible the errors of individual instruments, but portions for the earlier dates and for northern stations are necessarily not so reliable as the rest on account of the inferior character and limited amount of the data on which they are based; but the tables as a whole are based on all the data presently available, very carefully computed and adjusted.

This Survey has established many repeat stations and meridian lines in different parts of the country at which it is easy to eliminate any uncertainty in regard to a compass and determine if there is any error. Particulars regarding the nearest station will be furnished on request.

The declination on any line of the Tables refers to the 1st day of July of the year given in the first column. A value for any other date must be obtained by interpolation from the tabular quantities. In this operation it is convenient to express the month and day as a fraction of the year as follows:—

Jan. 19 to Feb. 24 = 0.1
 Feb. 25 to April 1 = 0.2
 April 2 to May 8 = 0.3
 May 9 to June 13 = 0.4
 June 14 to July 20 = 0.5

July 21 to Aug. 25 = 0.6
 Aug. 26 to Oct. 1 = 0.7
 Oct. 2 to Nov. 7 = 0.8
 Nov. 8 to Dec. 13 = 0.9
 Dec. 14 to Jan. 18 = 1.0

While the rate of change in the declination is not constant for even a period of five years, it is accurate enough for all practical purposes to assume that the annual change is uniform for the intervals between the tabular values.

The use of the tables may be best explained by a few examples:—

1. What was the change in declination in Prince Edward Island between July 1, 1814, and August 20, 1917, according to the tables?

In the table for Charlottetown, Prince Edward Island, the values for 1810 and 1820 are $19^{\circ} 49' \text{ W.}$ and $20^{\circ} 19' \text{ W.}$, respectively, showing an average annual increase of $3' \cdot 0$. Hence the value for July 1, 1814, would be $19^{\circ} 49' \text{ W.} + (3' \cdot 0 \times 4 \cdot 0) = 20^{\circ} 01' \text{ W.}$ The table gives for 1915 and 1920 the values $24^{\circ} 18' \text{ W.}$ and $24^{\circ} 32' \text{ W.}$, respectively, with an average annual change of $2' \cdot 8 \text{ W.}$ Hence the declination for August 20, 1917, would be $24^{\circ} 18' \text{ W.} + (2' \cdot 8 \times 2 \cdot 1) = 24^{\circ} 24' \text{ W.}$ nearly. Therefore the north end of the compass needle pointed $4^{\circ} 23'$ more to the west on August 20, 1917, than it did on July 1, 1814.

2. If the compass bearing of a lot line near Halifax, Nova Scotia, was N. 27° W. in 1820, what would be the compass bearing in 1925, according to the tables?

In the table for Halifax, Nova Scotia, the values for 1820 and 1925 are $17^{\circ} 41' \text{ W.}$ and $22^{\circ} 30' \text{ W.}$, respectively. Hence the compass has marched $4^{\circ} 49' \text{ W.}$, and the compass bearing of N. 27° W. in 1820 would be N. $27^{\circ} \text{ W.} - 4^{\circ} 49' = \text{N. } 22^{\circ} 11' \text{ W.}$ in 1925.

3. If the compass bearing of the county line between the counties of St. John and Charlotte, New Brunswick, was N. $17^{\circ} 21' \text{ E.}$ in 1838; what would be the compass bearing in 1925, according to the tables?

In the table for St. John, New Brunswick, the values for 1838 and 1925 are $17^{\circ} 05' \text{ W.}$ and $21^{\circ} 34' \text{ W.}$, respectively. Hence the compass has marched $4^{\circ} 29' \text{ W.}$, and the compass bearing of N. $17^{\circ} 21' \text{ E.}$ in 1838 would be N. $17^{\circ} 21' \text{ E.} + 4^{\circ} 29' = \text{N. } 21^{\circ} 50' \text{ E.}$ in 1925.

4. If the magnetic bearing of a division line in the township of Matapedia, Quebec, was N. 30° W. in 1885, what would be the compass bearing in 1925, according to the tables?

In the table for Carleton, Quebec, the values for 1885 and 1925 are $23^{\circ} 22' \text{ W.}$ and $25^{\circ} 01' \text{ W.}$, respectively. Hence the compass has marched $1^{\circ} 39' \text{ W.}$, and the compass bearing of N. 30° W. in 1885 would be N. $30^{\circ} \text{ W.} - 1^{\circ} 39' = \text{N. } 28^{\circ} 21' \text{ W.}$ in 1925.

5. If the magnetic bearings of the concession lines and lot lines of the township of Nepean, Ontario, were N. 16° W. and N. 66° E. , respectively, in 1823–24, what would be the compass bearings of these lines in 1925, according to the tables?

In the table for Ottawa, Ontario, the values for 1823–24 and 1925 are $7^{\circ} 00' \text{ W.}$ and $14^{\circ} 12' \text{ W.}$, respectively. Hence the compass has marched $7^{\circ} 12' \text{ W.}$, and the compass bearing of the concession lines N. 16° W. would be N. $16^{\circ} \text{ W.} - 7^{\circ} 12' = \text{N. } 8^{\circ} 48' \text{ W.}$ in 1925; and the compass bearing of the lot lines N. 66° E. would be N. $66^{\circ} \text{ E.} + 7^{\circ} 12' = \text{N. } 73^{\circ} 12' \text{ E.}$ in 1925.

6. If the compass bearing of a boundary of a mineral claim near Berens River, Manitoba, was N. 10° W. in 1890, what would be the compass bearing in 1925, according to the tables?

In the tables for Berens River, Manitoba, the values for 1890 and 1925 are $12^{\circ} 49' \text{ E.}$ and $11^{\circ} 06' \text{ E.}$, respectively. Hence the compass has marched $1^{\circ} 43' \text{ W.}$, and the compass bearing of N. 10° W. in 1890 would be N. $10^{\circ} \text{ W.} - 1^{\circ} 43' = \text{N. } 8^{\circ} 17' \text{ W.}$ in 1925.

7. If the compass bearing of a boundary of a timber berth near Prince Albert, Saskatchewan, was N. 40° W. in 1903, what would be the compass bearing in 1925, according to the tables?

In the table for Prince Albert, Saskatchewan, the values for 1903 and 1925 are 22° 33' E. and 21° 35' E., respectively. Hence the compass has marched 58' W., and the compass bearing of N. 40° W. in 1903 would be N. 40° W. — 58' = N. 39° 02' W. in 1925.

8. If the compass bearing of a line in a coal mine near Lethbridge, Alberta, was N. 12° E. in 1892, what would be the compass bearing in 1925 according to the tables?

In the table for Lethbridge, Alberta, the values for 1892 and 1925 are 22° 27' E. and 22° 49' E., respectively. Hence the compass has marched 22' E., and the compass bearing of N. 12° E. in 1892 would be N. 12° E. + 22' = N. 11° 38' E. in 1925.

9. If the compass bearing of a boundary of a mineral claim near Ashcroft, British Columbia, was N. 25° W. in 1887, what would be the compass bearing in 1925, according to the tables?

In the table for Ashcroft, British Columbia, the values for 1887 and 1925 are 26° 39' E. and 27° 35' E., respectively. Hence the compass has marched 56' E., and the compass bearing of N. 25° W. in 1887 would be N. 25° W. + 56' = N. 25° 56' W. in 1925.

The March of the Compass in Canada

Place:	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	P.E.I.	N.B.
	Sydney	Mulgrave	Halifax	Pugwash	Windsor	Annapolis	Yarmouth	Charlottetown	Moncton
Longitude:	60° 12'	61° 23'	63° 35'	63° 40'	64° 09'	65° 31'	66° 07'	63° 07'	64° 47'
Latitude:	46 09	45 36	44 38	45 50	45 00	44 45	43 50	46 14	46 05
1750.....	16 24 W.	16 07 W.	13 04 W.	13 58 W.	12 59 W.	12 09 W.	9 34 W.	14 49 W.	14 02 W.
1760.....	17 04	16 37	13 19	14 21	13 17	12 23	9 35	15 14	14 19
1770.....	17 49	17 14	13 41	14 51	13 43	12 45	9 43	15 49	14 42
1780.....	18 47	18 07	14 23	15 38	14 29	13 27	10 08	16 42	15 17
1790.....	20 14	19 35	15 47	16 55	15 49	14 51	11 04	17 54	16 21
1800.....	21 17	20 34	16 41	17 52	16 45	15 45	11 44	19 00	17 07
1810.....	22 07	21 17	17 17	18 35	17 25	16 21	12 14	19 49	17 47
1820.....	22 51	21 54	17 41	19 07	17 51	16 45	12 39	20 19	18 21
1830.....	23 09	22 05	17 41	19 17	17 55	16 45	12 51	20 30	18 35
1840.....	23 34	22 27	17 59	19 40	18 15	17 03	13 17	20 54	19 01
1850.....	24 17	23 19	19 04	20 41	19 18	18 08	14 15	21 54	20 07
1860.....	25 07	24 02	19 51	21 32	20 09	18 55	15 02	22 54	20 57
1870.....	25 24	24 23	20 19	21 56	20 35	19 23	15 30	23 14	21 24
1880.....	25 19	24 25	20 32	22 02	20 44	19 36	15 46	23 16	21 36
1890.....	25 03	24 18	20 32	21 59	20 42	19 36	15 51	23 11	21 38
1900.....	25 01	24 22	20 43	22 07	20 52	19 47	16 07	23 17	21 49
1905.....	25 10	24 33	20 58	22 20	21 07	20 22	16 23	23 31	22 03
1910.....	25 35	25 00	21 30	22 49	21 39	20 33	16 55	23 58	22 33
1915.....	25 54	25 18	21 49	23 08	21 58	20 52	17 15	24 18	22 50
1920.....	26 02	25 33	22 12	23 26	22 21	21 13	17 37	24 32	23 10
1925.....	26 04 W.	25 42 W.	22 30 W.	23 39 W.	22 39 W.	21 30 W.	17 55 W.	24 41 W.	23 25 W.
Annual change in 1925....	0° 1 W.	1° 5 W.	3° 4 W.	2° 4 W.	3° 4 W.	3° 2 W.	3° 4 W.	1° 7 W.	2° 8 W.

The March of the Compass in Canada—Continued

Place:	N.B. New- castle	N.B. St. John	N.B. Frederic- ton	N.B. Camp- bell- ton	N.B. St. Stephen	N.B. Wood- stock	N.B. Edmunds- ton	Que. Bradore Harbour	Que. Wapi- tagun
Longitude:	65° 34'	66° 03'	66° 38'	66° 42'	67° 27'	67° 35'	68° 20'	57° 14'	60° 03'
Latitude:	47 00	45 17	45 55	48 00	45 12	46 09	47 23	51 29	50 12
	° /	° /	° /	° /	° /	° /	° /	° /	° /
1750.....	15 29 W.	12 14 W.	13 19 W.	16 46 W.	11 00 W.	13 24 W.	15 37 W.	23 57 W.	22 40 W.
1760.....	15 40	12 29	13 28	16 56	11 09	13 27	15 35	24 55	23 30
1770.....	15 57	12 51	13 42	17 07	11 21	13 33	15 33	25 51	24 20
1780.....	16 24	13 33	14 11	17 21	11 37	13 49	15 36	26 51	25 14
1790.....	17 04	14 57	15 07	17 37	12 07	14 24	15 43	28 03	26 21
1800.....	17 37	15 51	15 42	17 49	12 42	14 37	15 37	29 36	27 33
1810.....	18 09	16 27	16 12	18 14	13 21	14 57	15 52	30 50	28 35
1820.....	18 49	16 51	16 42	19 03	14 03	15 30	16 35	31 57	29 30
1830.....	19 09	16 51	16 53	19 28	14 49	15 49	16 53	32 51	30 14
1840.....	19 39	17 09	17 19	20 04	15 37	16 17	17 27	33 36	30 49
1850.....	20 45	18 14	18 21	21 19	16 32	17 11	18 42	34 42	31 33
1860.....	21 44	19 01	19 10	22 23	17 21	18 01	19 44	35 42	32 21
1870.....	22 10	19 29	19 38	22 49	17 49	18 31	20 11	36 06	33 00
1880.....	22 19	19 42	19 54	22 57	18 12	18 51	20 25	36 00	33 07
1890.....	22 23	19 42	20 00	23 03	18 21	19 02	20 35	35 30	32 53
1900.....	22 34	19 53	20 14	23 14	18 39	19 17	20 49	34 52	32 33
1905.....	22 48	20 07	20 28	23 28	18 54	19 34	21 04	34 40	32 27
1910.....	23 15	20 38	20 59	23 53	19 24	20 05	21 32	34 39	32 30
1915.....	23 36	20 58	21 20	24 10	19 48	20 27	21 56	34 34	32 27
1920.....	23 52	21 17	21 39	24 25	20 08	20 46	22 13	34 24	32 21
1925.....	24 04 W.	21 34 W.	21 56 W.	24 37 W.	20 26 W.	21 03 W.	22 28 W.	34 12 W.	32 14 W.
Annual change in 1925...	2'·2 W.	3'·3 W.	3'·3 W.	2'·3 W.	3'·5 W.	3'·3 W.	2'·9 W.	2'·5 E.	1'·5 E.

Place:	Que. Kegashka Bay	Que. East Cape, Anticosti	Que. Magdalen Islands	Que. Gaspé Bay	Que. West Cape, Anticosti	Que. Port Burwell	Que. Carleton	Que. Seven Islands	Que. Pointe des Monts
Longitude:	61° 14'	61° 42'	61° 50'	64° 28'	64° 32'	64° 42'	66° 07'	66° 22'	67° 22'
Latitude:	50 12	49 05	47 14	48 50	49 53	60 25	48 07	50 10	49 20
	° /	° /	° /	° /	° /	° /	° /	° /	° /
1750.....	22 57 W.	19 57 W.	16 30 W.	18 11 W.	20 49 W.	—	17 00 W.	21 49 W.	18 14 W.
1760.....	23 35	20 32	17 07	18 33	21 12	—	17 11	21 56	18 17
1770.....	24 14	21 07	17 49	18 57	21 33	—	17 21	22 01	18 18
1780.....	24 53	21 42	18 42	19 21	21 56	—	17 35	22 10	18 20
1790.....	25 47	22 28	19 37	19 54	22 25	—	17 56	22 24	18 23
1800.....	26 42	23 14	20 35	20 24	22 59	—	18 14	22 47	18 25
1810.....	27 35	24 07	21 32	21 03	23 38	—	18 37	23 10	18 42
1820.....	28 24	25 00	22 21	21 56	24 17	—	19 21	23 35	19 26
1830.....	29 03	25 39	22 49	22 28	24 49	—	19 49	23 56	19 51
1840.....	29 35	26 14	23 21	23 04	25 17	—	20 27	24 23	20 35
1850.....	30 23	27 14	24 23	24 07	26 10	—	21 42	25 07	21 50
1860.....	31 12	28 12	25 27	25 07	26 57	—	22 42	25 45	22 44
1870.....	31 49	28 42	25 49	25 37	27 31	—	23 07	26 19	23 08
1880.....	31 57	28 47	25 45	25 45	27 42	45 25 W.	23 17	26 35	23 17
1890.....	31 49	28 38	25 35	25 44	27 40	44 03	23 27	26 42	23 23
1900.....	31 35	28 31	25 35	25 47	27 40	42 57	23 39	26 49	23 34
1905.....	31 84	28 34	25 47	25 53	27 47	42 30	23 52	26 57	23 44
1910.....	31 42	28 46	26 07	26 11	28 02	42 02	24 17	27 12	23 54
1915.....	31 45	28 51	26 21	26 22	28 09	41 30	24 35	27 21	24 05
1920.....	31 42	28 53	26 30	26 29	28 14	40 50	24 49	27 28	24 15
1925.....	31 38 W.	28 52 W.	26 35 W.	26 34 W.	28 18 W.	40 10 W.	25 01 W.	27 33 W.	24 24 W.
Annual change in 1925...	0'·9 E.	0'·4 E.	0'·8 W.	0'·9 W.	0'·7 W.	8'·0 E.	2'·3 W.	0'·9 W.	1'·7 W.

The March of the Compass in Canada—Continued

Place:	Que.	Que.	Que.	Que.	Que.	Que.	Que.	Que.	Que.
	Rimbouski	Tadoussac	Chicoutimi	Quebec City	Hereford	Richmond	Roberval	Three Rivers	Montreal
Longitude:	68° 31'	69° 43'	71° 04'	71° 14'	71° 30'	72° 09'	72° 14'	72° 32'	73° 35'
Latitude:	48 30	48 09	48 25	46 48	45 00	45 40	48 31	46 21	45 30
1750	17 00 W.	15 17 W.	16 47 W.	14 07 W.	10 56 W.	14 02 W.	17 37 W.	11 23 W.	11 45 W.
1760	16 57	15 11	16 27	13 48	10 52	13 35	17 07	10 59	11 17
1770	16 54	15 02	16 07	13 27	10 14	13 10	16 37	10 33	10 47
1780	16 49	14 51	15 44	13 03	9 56	12 45	16 04	10 03	10 11
1790	16 42	14 35	15 17	12 33	9 37	12 21	15 27	9 28	9 31
1800	16 24	14 07	14 42	11 45	9 21	11 49	14 49	8 40	8 43
1810	16 34	14 12	14 37	11 37	9 28	11 51	14 35	8 33	8 37
1820	17 36	15 14	15 24	12 42	10 14	12 35	15 07	9 28	9 22
1830	18 03	15 42	15 42	13 03	10 57	13 21	15 17	10 15	10 35
1840	18 39	16 14	16 12	13 36	11 35	13 57	15 42	10 48	11 07
1850	20 05	17 39	17 27	15 00	12 33	15 02	16 45	12 00	12 07
1860	21 06	18 42	18 28	16 18	13 37	16 14	17 42	13 24	13 37
1870	21 28	19 03	18 56	16 50	14 17	16 54	18 12	14 07	14 31
1880	21 40	19 14	19 14	17 06	14 42	17 14	18 35	14 24	14 49
1890	21 52	19 27	19 35	17 20	15 01	17 33	19 00	14 40	15 10
1900	22 07	19 40	19 56	17 39	15 27	17 58	19 25	15 02	15 37
1905	22 22	19 55	20 10	17 51	15 42	18 14	19 40	15 20	15 55
1910	22 49	20 22	20 37	18 20	16 12	18 43	20 05	15 48	16 25
1915	23 07	20 40	20 57	18 42	16 39	19 09	20 25	16 12	16 50
1920	23 22	20 57	21 15	19 01	17 00	19 30	20 43	16 31	17 10
1925	23 36 W.	21 13 W.	21 32 W.	19 19 W.	17 20 W.	19 50 W.	21 00 W.	16 49 W.	17 29 W.
Annual change in 1925...	2°·7 W.	3°·1 W.	3°·4 W.	3°·6 W.	3°·9 W.	3°·9 W.	3°·4 W.	3°·6 W.	3°·7 W.

Place:	Que.	Que.	Que.	Que.	Que.	Que.	Que.	Que.	Ont.
	Labelle	Mishomis	Aylmer	Fort Coulonge	Port Laperriere	Amos	Rupert House	Ville Marie	Cornwall
Longitude:	74° 43'	75° 38'	75° 52'	76° 44'	77° 56'	78° 07'	78° 43'	79° 27'	74° 44'
Latitude:	46 16	47 13	45 24	45 51	62 36	48 34	51 30	47 20	45 01
1750	—	—	9 26 W.	—	—	—	—	—	8 38 W.
1760	—	—	8 39	—	—	—	—	—	7 57
1770	—	—	7 52	—	—	—	—	—	7 17
1780	—	—	7 11	—	—	—	—	—	6 39
1790	—	—	6 36	—	—	—	—	—	6 07
1800	—	—	6 11	—	—	—	—	—	5 37
1810	—	—	6 01	—	—	—	—	—	5 32
1820	—	—	6 25	6 00 W.	—	—	—	—	5 37
1830	—	—	7 07	6 17	—	—	—	—	6 39
1840	10 37 W.	8 18 W.	7 37	6 43	—	7 52 W.	11 38 W.	4 42 W.	7 10
1850	11 32	9 07	8 26	7 20	—	8 29	11 56	5 14	7 59
1860	12 42	10 05	9 30	8 06	—	9 12	12 28	5 55	9 03
1870	13 29	10 47	10 17	8 48	—	9 52	13 00	6 38	9 50
1880	14 01	11 22	10 57	9 33	41 51 W.	10 33	13 28	7 24	10 25
1890	14 31	11 55	11 30	10 09	41 13	11 14	14 14	8 07	10 55
1900	15 01	12 27	12 07	10 47	40 43	11 51	14 52	8 42	11 25
1905	15 20	12 45	12 24	11 06	40 31	12 09	15 12	8 59	11 41
1910	15 47	13 10	12 51	11 30	40 19	12 30	15 33	9 19	12 08
1915	16 11	13 33	13 13	11 51	40 08	12 50	15 52	9 39	12 34
1920	16 31	13 53	13 31	12 09	39 57	13 10	16 11	10 00	12 53
1925	16 50 W.	14 12 W.	13 52 W.	12 30 W.	39 41 W.	13 30 W.	16 30 W.	10 21 W.	13 15 W.
Annual change in 1925...	3°·7 W.	3°·7 W.	4°·3 W.	4°·6 W.	3°·5 E.	4°·0 W.	3°·8 W.	4°·2 W.	4°·6 W.

The March of the Compass in Canada—Continued

Place:	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.
	Ottawa	Kingston	Chalk River	Port Hope	Fort Erie	Toronto	North Bay	Penetanguishene	Simcoe
Longitude; Latitude:	75° 42' 45 25	76° 30' 44 13	77° 26' 46 00	78° 16' 43 56	78° 55' 42 55	79° 23' 43 39	79° 26' 46 19	79° 55' 44 47	80° 18' 42 51
1750.....	9 50 W.	10 10 W.	—	7 24 W.	—	3 21 W.	—	—	—
1760.....	9 03	9 25	—	6 40	—	2 37	—	—	—
1770.....	8 16	8 42	—	6 00	1 49 W.	2 00	—	—	—
1780.....	7 35	8 07	—	5 22	1 15	1 21	—	—	—
1790.....	7 00	7 35	—	4 51	0 45	0 49	—	2 25 W.	—
1800.....	6 31	7 10	—	4 31	0 30	0 28	—	2 00	0 03 E.
1810.....	6 21	7 04	—	4 15	0 24	0 14	—	1 49	0 12
1820.....	6 45	7 24	5 22 W.	4 30	0 30	0 25	4 07 W.	1 55	0 09 E.
1830.....	7 28	7 57	5 32	4 54	0 47	0 42	4 10 W.	2 14	0 04 W.
1840.....	7 57	8 25	5 54	5 23	1 14	1 12	4 27	2 37	0 27
1850.....	8 46	9 07	6 29	5 58	1 49	1 39	4 58	3 10	0 59
1860.....	9 50	10 00	7 10	6 40	2 30	2 10	5 34	3 53	1 37
1870.....	10 37	10 41	7 53	7 17	3 12	2 43	6 16	4 34	2 14
1880.....	11 17	11 24	8 41	8 07	3 59	3 40	7 04	5 20	3 02
1890.....	11 50	11 57	9 23	8 46	4 41	4 18	7 47	6 01	3 43
1900.....	12 26	12 32	10 01	9 24	5 20	4 59	8 24	6 38	4 21
1905.....	12 44	12 48	10 20	9 40	5 36	5 13	8 41	6 54	4 36
1910.....	13 11	13 14	10 43	10 03	5 58	5 35	9 01	7 14	4 56
1915.....	13 33	13 37	11 05	10 27	6 20	5 59	9 22	7 33	5 16
1920.....	13 51	13 58	11 23	10 45	6 39	6 15	9 41	7 53	5 33
1925.....	14 12 W.	14 19 W.	11 45 W.	11 09 W.	7 04 W.	6 39 W.	10 03 W.	8 16 W.	5 57 W.
Annual change in 1925...	4'·5 W.	4'·6 W.	4'·6 W.	5'·1 W.	5'·3 W.	5'·2 W.	4'·5 W.	4'·8 W.	5'·1 W.

Place:	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.	Ont.
	Moose Factory	Abitibi	Sudbury	Fort Albany	Goderich	Cove Island	Bisco	Sandwich	Albany Rapids
Longitude; Latitude:	80° 40' 51 15	80° 53' 49 02	81° 00' 46 30	81° 39' 52 14	81° 42' 43 46	81° 44' 45 20	82° 08' 47 18	83° 05' 42 18	83° 30' 49 22
1750.....	19 51 W.	—	—	20 27 W.	—	—	—	—	—
1760.....	18 43	—	—	18 57	—	—	—	—	—
1770.....	17 30	—	—	17 27	—	—	—	—	—
1780.....	16 20	—	—	15 51	—	—	—	—	—
1790.....	15 09	—	—	14 03	—	—	—	—	—
1800.....	14 12	—	—	12 12	0 07 W.	3 08 W.	—	—	—
1810.....	13 24	—	—	10 18	0 10 E.	2 46	—	2 23 E.	—
1820.....	12 51	5 50 W.	1 55 W.	8 54	0 15	2 37	1 09 E.	2 24	1 51 W.
1830.....	12 37	5 40	1 54	7 57	0 09 E.	2 40	1 14	2 15	1 41
1840.....	12 40	5 47	2 09	7 33	0 09 W.	2 55	1 04	1 55	1 47
1850.....	12 58	6 09	2 38	7 36	0 39	3 23	0 40	1 27	2 08
1860.....	13 27	6 42	3 17	8 00	1 18	3 59	0 05 E.	0 51	2 41
1870.....	14 07	7 24	4 00	8 33	1 59	4 41	0 39 W.	0 11 E.	3 24
1880.....	14 52	8 10	4 47	9 02	2 45	5 28	1 26	0 34 W.	4 10
1890.....	15 39	8 56	5 30	9 56	3 26	6 11	2 11	1 15	4 57
1900.....	16 21	9 35	6 06	10 37	4 01	6 49	2 46	1 50	5 37
1905.....	16 40	9 52	6 22	10 58	4 12	7 02	3 02	2 05	5 53
1910.....	17 00	10 11	6 41	11 18	4 30	7 18	3 20	2 20	6 10
1915.....	17 20	10 30	7 01	11 37	4 48	7 35	3 39	2 36	6 28
1920.....	17 39	10 49	7 21	11 57	5 08	7 51	3 59	2 53	6 48
1925.....	17 57 W.	11 09 W.	7 43 W.	12 16 W.	5 32 W.	8 14 W.	4 21 W.	3 14 W.	7 10 W.
Annual change in 1925...	3'·6 W.	4'·1 W.	4'·5 W.	3'·7 W.	5'·0 W.	5'·0 W.	4'·5 W.	4'·4 W.	4'·5 W.

[illegible]

The March of the Compass in Canada—Continued

Place:	Ont. Sault Ste. Marie	Ont. Michi- picoen	Ont. Martin Falls	Ont. Schreiber	Ont. Port Arthur	Ont. Osnaburgh House	Ont. Lac Seul	Ont. Fort Frances	Ont. Kenora
Longitude:	84° 19'	84° 51'	86° 16'	87° 18'	89° 13'	90° 16'	92° 17'	93° 24'	94° 26'
Latitude:	46 31	47 56	51 32	48 49	48 26	51 08	50 19	48 37	49 46
1750.....	0 /	0 /	0 /	0 /	0 /	0 /	0 /	0 /	0 /
1760.....	—	—	—	—	—	—	—	—	—
1770.....	—	—	—	—	—	—	—	—	—
1780.....	—	—	—	—	—	—	—	—	—
1790.....	0 07 E.	—	—	—	—	—	—	—	—
1800.....	0 37	—	—	—	—	—	—	—	—
1810.....	1 01	—	—	—	—	—	—	—	—
1820.....	1 11	1 11 E.	0 14 E.	3 38 E.	6 40 E.	5 44 E.	8 11 E.	8 57 E.	12 17 E.
1830.....	1 15	1 17	0 58	3 55	6 50	6 30	8 53	9 23	13 02
1840.....	1 07	1 09	1 00	3 48	6 44	6 44	8 53	9 37	13 17
1850.....	0 47	0 47	0 45	3 23	6 27	6 29	8 43	9 29	13 00
1860.....	0 16 E.	0 14 E.	0 10 E.	2 45	5 57	5 55	8 17	9 07	12 27
1870.....	0 29 W.	0 33 W.	0 29 W.	2 02	5 17	5 15	7 39	8 32	11 47
1880.....	1 17	1 20	1 11	1 14	4 31	4 33	6 57	7 50	11 00
1890.....	2 03	2 08	1 50	0 29 E.	3 44	3 53	6 16	7 05	10 17
1900.....	2 41	2 47	2 26	0 08 W.	3 10	3 22	5 49	6 35	9 49
1905.....	2 53	3 01	2 42	0 19	3 07	3 12	5 45	6 34	9 53
1910.....	3 07	3 16	2 58	0 31	3 03	3 01	5 40	6 35	9 57
1915.....	3 25	3 33	3 17	0 48	2 46	2 42	5 24	6 24	9 43
1920.....	3 43	3 53	3 41	1 09	2 20	2 15	4 51	6 01	9 17
1925.....	4 07 W.	4 17 W.	4 05 W.	1 33 W.	1 49 E.	1 46 E.	4 15 E.	5 29 E.	8 43 E.
Annual change in 1925...	5'·1 W.	5'·0 W.	4'·8 W.	5'·0 W.	6'·5 W.	5'·9 W.	7'·4 W.	7'·0 W.	7'·2 W.

Place:	Man. York Factory	Man. Churchill	Man. Oxford House	Man. The Narrows	Man. Berens River	Man. Winnipeg	Man. Norway House	Man. Fairford	Man. Grand Rapids
Longitude:	92° 18'	94° 10'	95° 42'	96° 38'	97° 02'	97° 09'	97° 52'	98° 42'	99° 17'
Latitude:	57 00	58 48	54 53	51 37	52 21	49 52	53 58	51 36	53 09
1750.....	13 18 W.	14 48 W.	—	—	—	—	—	—	—
1760.....	11 00	12 16	—	—	—	—	—	—	—
1770.....	8 40	9 57	—	—	—	—	—	—	—
1780.....	6 12	7 14	—	—	—	—	—	—	—
1790.....	3 20	4 30	—	—	—	—	—	—	—
1800.....	0 07 W.	1 16 W.	—	—	—	—	—	—	—
1810.....	3 10 E.	2 01 E.	—	—	—	—	—	—	—
1820.....	6 24	5 27	8 24 E.	14 03 E.	12 21 E.	14 54 E.	14 10 E.	15 17 E.	15 25 E.
1830.....	8 24	9 00	10 03	15 27	13 44	15 40	15 33	16 17	16 37
1840.....	8 48	11 24	10 35	16 17	14 29	16 03	16 14	16 47	17 14
1850.....	8 36	12 12	10 22	16 28	14 39	16 05	16 24	16 49	17 21
1860.....	7 48	12 00	9 36	16 12	14 22	15 51	16 07	16 32	17 00
1870.....	7 12	11 30	8 51	15 40	13 52	15 21	15 40	16 02	16 31
1880.....	6 42	11 00	8 18	15 00	13 19	14 36	15 14	15 21	15 54
1890.....	6 24	10 42	7 54	14 24	12 49	13 52	14 51	14 47	15 27
1900.....	6 00	10 24	7 32	14 12	12 34	13 40	14 33	14 34	15 14
1905.....	5 42	10 12	7 14	14 19	12 35	13 50	14 29	14 28	15 16
1910.....	5 24	9 48	6 48	14 20	12 30	13 56	14 18	14 31	15 14
1915.....	4 48	9 06	6 10	14 04	12 13	13 40	14 00	14 14	14 58
1920.....	4 15	8 33	5 30	13 37	11 43	13 18	13 26	13 50	14 28
1925.....	3 42 E.	8 00 E.	4 48 E.	13 02 E.	11 06 E.	12 44 E.	12 48 E.	13 15 E.	13 51 E.
Annual change in 1925...	6'·6 W.	6'·6 W.	8'·4 W.	7'·4 W.	7'·8 W.	7'·4 W.	7'·8 W.	7'·6 W.	7'·8 W.

The March of the Compass in Canada—Continued

Place:	Man.	Man.	Man.	Man.	Sask.	Sask.	Sask.	Sask.	Sask.
	Brandon	The Pas	Swan River	Brochet	Fort Pelly	Cumberland House	Estevan	South End	Regina
Longitude:	99° 59'	101° 15'	101° 16'	101° 40'	102° 00'	102° 17'	102° 58'	103° 15'	104° 36'
Latitude:	49 52	53 50	52 06	57 53	51 48	53 59	49 09	56 20	50 26
1750.....	—	—	—	—	—	—	—	—	—
1760.....	—	—	—	—	—	—	—	—	—
1770.....	—	—	—	—	—	—	—	—	—
1780.....	—	—	—	—	—	—	—	—	—
1790.....	—	—	—	—	—	—	—	—	—
1800.....	—	—	—	—	—	—	—	—	—
1810.....	—	—	—	—	—	—	—	—	—
1820.....	15 37 E.	18 26 E.	18 12 E.	18 01 E.	18 51 E.	18 36 E.	—	19 00 E.	—
1830.....	16 12	19 38	19 09	20 02	19 45	19 48	—	20 27	—
1840.....	16 35	20 18	19 42	21 15	20 19	20 33	18 27 E.	21 13	19 40 E.
1850.....	16 39	20 30	19 53	21 39	20 31	20 52	18 37	21 32	19 57
1860.....	16 27	20 19	19 42	21 27	20 23	20 51	18 35	21 27	19 58
1870.....	16 07	19 58	19 23	21 03	20 07	20 40	18 23	21 12	19 50
1880.....	15 34	19 31	18 54	20 39	19 41	20 22	17 59	20 53	19 30
1890.....	15 00	19 09	18 28	20 24	19 16	20 05	17 30	20 39	19 05
1900.....	14 45	19 00	18 18	20 20	19 07	20 00	17 20	20 37	19 00
1905.....	14 50	19 03	18 23	20 19	19 16	20 04	17 29	20 40	19 10
1910.....	14 56	19 03	18 26	20 07	19 23	20 05	17 38	20 33	19 20
1915.....	14 49	18 47	18 14	19 39	19 12	19 51	17 34	20 12	19 15
1920.....	14 30	18 18	17 49	19 08	18 50	19 23	17 18	19 42	18 56
1925.....	14 02 E.	17 42 E.	17 14 E.	18 28 E.	18 16 E.	18 47 E.	16 53 E.	19 04 E.	18 26 E.
Annual change in 1925...	6° 1 W.	7° 6 W.	7° 5 W.	8° 5 W.	7° 4 W.	7° 6 W.	5° 5 W.	8° 0 W.	6° 6 W.

Place:	Sask.	Sask.	Sask.	Sask.	Sask.	Sask.	Sask.	Alta.	Alta.
	Stanley	Prince Albert	Saskatoon	Fond du Lac	Swift Current	Ile à la Crosse	Battleford	Medicine Hat	Vermilion
Longitude:	104° 37'	105° 45'	106° 37'	107° 11'	107° 48'	107° 54'	108° 20'	110° 41'	110° 51'
Latitude:	55 28	53 12	52 09	59 19	50 16	55 29	52 44	50 03	53 20
1750.....	—	—	—	—	—	—	—	—	—
1760.....	—	—	—	—	—	—	—	—	—
1770.....	—	—	—	—	—	—	—	—	—
1780.....	—	—	—	—	—	—	—	—	—
1790.....	—	—	—	—	—	—	—	—	—
1800.....	—	—	—	—	—	—	—	—	—
1810.....	—	—	—	—	—	—	—	—	—
1820.....	22 27 E.	20 37 E.	—	27 15 E.	—	22 50 E.	—	—	—
1830.....	23 31	21 37	—	28 42	—	23 53	—	—	—
1840.....	24 11	22 17	22 49 E.	29 49	20 25 E.	24 38	21 49 E.	20 43 E.	23 33 E.
1850.....	24 32	22 44	23 17	30 19	20 53	25 10	22 28	21 17	24 21
1860.....	24 37	22 53	23 29	30 27	21 08	25 25	22 49	21 37	24 50
1870.....	24 30	22 51	23 29	30 21	21 11	25 27	22 56	21 46	25 04
1880.....	24 18	22 37	23 16	30 11	20 59	25 19	22 49	21 40	25 09
1890.....	24 08	22 24	23 01	30 07	20 40	25 12	22 37	21 25	25 06
1900.....	24 11	22 27	23 04	30 17	20 44	25 23	22 49	21 35	25 22
1905.....	24 19	22 37	23 16	30 27	20 59	25 37	23 03	21 51	25 39
1910.....	24 16	22 44	23 26	30 25	21 11	25 42	23 12	22 05	25 48
1915.....	23 57	22 35	23 19	30 06	21 10	25 30	23 06	22 07	25 42
1920.....	23 30	22 10	22 57	29 41	20 54	25 07	22 46	21 54	25 24
1925.....	22 54 E.	21 35 E.	22 23 E.	29 09 E.	20 28 E.	24 34 E.	22 14 E.	21 32 E.	24 54 E.
Annual change in 1925...	7° 7 W.	7° 5 W.	7° 4 W.	6° 8 W.	5° 7 W.	7° 1 W.	7° 0 W.	4° 9 W.	6° 6 W.

The March of the Compass in Canada—Continued

Place:	Alta. Chipe- wyan	Alta. McMur- ray	Alta. Leth- bridge	Alta. Edmon- ton	Alta. Calgary	Alta. Banff	Alta. Fort Vermilion	Alta. Peace River	Alta. Jasper.
Longitude: Latitude:	111° 09' 58 43	111° 20' 56 44	112° 49' 49 36	113° 28' 53 30	113° 57' 51 07	115° 34' 51 10	116° 04' 58 19	117° 17' 56 14	118° 05' 52 53
1750	—	—	—	—	—	—	—	—	—
1760	—	—	—	—	—	—	—	—	—
1770	—	—	—	—	—	—	—	—	—
1780	—	—	—	—	—	—	—	—	—
1790	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—
1810	—	—	—	—	—	—	—	—	—
1820	23 37 E.	25 07 E.	—	—	—	—	27 49 E.	—	—
1830	25 24	26 45	—	—	—	—	29 28	—	—
1840	26 31	27 56	21 07 E.	23 54 E.	22 40 E.	23 14 E.	30 47	28 07 E.	24 14 E.
1850	27 15	28 42	21 49	25 07	23 30	24 00	31 56	28 57	25 00
1860	27 37	29 07	22 19	25 54	24 03	24 32	32 42	29 37	25 32
1870	27 42	29 14	22 37	26 24	24 24	24 54	33 14	30 03	25 54
1880	27 37	29 12	22 34	26 33	24 29	25 01	33 21	30 14	26 04
1890	27 38	29 07	22 25	26 30	24 27	25 02	33 21	30 14	26 09
1900	27 55	29 27	22 37	26 54	24 47	25 23	33 45	30 47	26 36
1905	28 16	29 47	22 56	27 21	25 07	25 45	34 07	31 12	27 00
1910	28 25	29 56	23 14	27 37	25 24	26 03	34 21	31 31	27 17
1915	28 16	29 47	23 17	27 35	25 27	26 07	34 17	31 30	27 21
1920	27 56	29 27	23 07	27 19	25 16	25 56	34 03	31 16	27 10
1925	27 30 E.	28 58 E.	22 49 E.	26 52 E.	24 56 E.	25 37 E.	33 43 E.	30 54 E.	26 52 E.
Annual change in 1925...	5° 5 W.	6° 3 W.	4° 0 W.	6° 0 W.	4° 4 W.	4° 2 W.	4° 3 W.	4° 8 W.	4° 0 W.

Place:	B.C. Kingsgate	B.C. Revel- stoke	B.C. Midway	B.C. Ashcroft	B.C. Yale	B.C. Hudson Hope	B.C. Alex- andria	B.C. Van- couver	B.C. Victoria
Longitude: Latitude:	116° 11' 49 00	118° 12' 51 00	118° 44' 49 00	121° 17' 50 44	121° 25' 49 34	121° 55' 56 02	122° 29' 52 33	123° 07' 49 18	123° 22' 48 25
1750	—	—	—	—	—	—	—	—	—
1760	—	—	—	—	—	—	—	—	—
1770	—	—	—	—	—	—	—	—	—
1780	—	—	—	—	—	—	—	19 03 E.	17 35 E.
1790	—	—	—	—	—	—	—	19 38	18 09
1800	—	—	—	—	—	—	—	20 10	18 42
1810	—	—	—	—	—	—	—	20 39	19 14
1820	—	—	—	—	—	—	—	21 07	19 52
1830	—	—	—	—	—	—	—	21 37	20 26
1840	21 41 E.	23 42 E.	21 10 E.	24 53 E.	22 49 E.	28 30 E.	25 16 E.	22 07	21 00
1850	22 18	24 18	21 42	25 26	23 17	29 07	25 49	22 37	21 32
1860	22 46	24 46	22 07	25 53	23 42	29 28	26 14	23 03	22 01
1870	23 03	25 06	22 23	26 15	24 02	29 49	26 32	23 28	22 27
1880	23 06	25 16	22 30	26 29	24 14	29 57	26 44	23 51	22 47
1890	23 06	25 26	22 39	26 43	24 32	30 10	26 57	24 07	23 04
1900	23 23	25 50	22 58	27 08	24 56	30 42	27 24	24 27	23 21
1905	23 42	26 10	23 16	27 28	25 14	31 05	27 44	24 51	23 45
1910	24 01	26 29	23 37	27 47	25 33	31 23	28 03	25 09	24 05
1915	24 08	26 35	23 45	27 54	25 44	31 26	28 09	25 37	24 27
1920	24 01	26 27	23 40	27 48	25 41	31 17	28 02	25 34	24 37
1925	23 47 E.	26 12 E.	23 28 E.	27 35 E.	25 27 E.	31 02 E.	27 49 E.	25 22 E.	24 35
Annual change in 1925...	3° 1 W.	3° 4 W.	2° 7 W.	3° 0 W.	3° 3 W.	3° 3 W.	2° 9 W.	2° 8 W.	2° 4 W.

The March of the Compass in Canada—Continued

Place:	B.C. Fort St. James	B.C. Comox	B.C. Port Mc- Loughlin	B.C. Prince Rupert	St. Pierre St. Pierre	Nfld. St. John's	Nfld. Twilling- gate	Nfld. Bay of Islands	Nfld. Port Basque
Longitude:	124° 20'	124° 55'	128° 10'	130° 21'	56° 11'	52° 44'	54° 46'	58° 00'	59° 08'
Latitude:	54 27	49 40	52 08	54 19	46 47	47 34	49 39	48 58	47 34
1750.....	—	—	—	—	16 47 W.	16 30 W.	—	19 00 W.	17 40 W.
1760.....	—	—	—	—	17 54	18 00	—	20 02	18 31
1770.....	—	19 45 E.	—	—	19 00	19 30	—	21 04	19 24
1780.....	—	20 28	—	—	20 14	21 00	—	22 12	20 25
1790.....	—	21 44	—	—	21 54	23 03	—	23 32	21 33
1800.....	—	21 56	—	—	23 04	24 30	—	24 49	22 36
1810.....	—	22 35	—	—	24 17	26 12	—	26 04	23 37
1820.....	—	23 14	—	—	25 21	27 37	—	27 12	24 30
1830.....	—	23 49	—	—	25 57	28 30	—	28 00	25 06
1840.....	27 02 E.	24 27	25 30 E.	26 40 E.	26 28	29 12	32 00 W.	28 39	25 36
1850.....	27 31	24 54	25 56	27 02	27 49	30 24	33 07	29 39	26 30
1860.....	27 51	25 17	26 14	27 17	28 42	31 00	34 00	30 30	27 34
1870.....	28 05	25 32	26 26	27 24	28 49	31 07	34 17	30 51	28 02
1880.....	28 15	25 46	26 39	27 32	28 25	30 37	34 04	30 33	27 54
1890.....	28 35	26 02	27 00	27 58	27 57	29 54	33 27	30 12	27 40
1900.....	29 03	26 27	27 25	28 25	27 45	29 33	32 57	30 12	27 37
1905.....	29 21	26 44	27 39	28 38	27 54	29 36	32 54	30 23	27 48
1910.....	29 37	27 07	27 56	28 53	28 11	29 45	32 57	30 33	28 07
1915.....	29 44	27 18	28 06	29 05	28 16	29 44	32 54	30 33	28 15
1920.....	29 40	27 17	28 06	29 07	28 16	29 33	32 43	30 30	28 19
1925.....	29 31 E.	27 09 E.	28 01 E.	29 05 E.	28 12 W.	29 18 W.	32 29 W.	30 24 W.	28 19 W.
Annual change in 1925...	2'-1 W.	2'-0 W.	1'-2 W.	0'-5 W.	1'-0 E.	3'-4 E.	3'-0 E.	1'-4 E.	0'-2 E.
Place:	Labrador Battle Harbour	Labrador Gready	Labrador Turnavik	Labrador Nain	N.W.T. Niantilik	N.W.T. Ashe Inlet	N.W.T. Notting- ham Island	N.W.T. Marble Island	N.W.T. Fort Reliance
Longitude:	55° 35'	56° 25'	59° 20'	61° 41'	66° 17'	70° 35'	77° 24'	91° 09'	108° 56'
Latitude:	52 16	53 48	55 15	56 33	64 54	62 33	63 15	62 40	62 47
1750.....	—	—	—	—	—	—	—	—	—
1760.....	—	—	—	—	—	—	—	—	—
1770.....	—	—	—	—	—	—	—	—	—
1780.....	—	—	—	—	—	—	—	—	—
1790.....	—	—	—	—	—	—	—	—	—
1800.....	—	—	—	—	—	—	—	—	—
1810.....	—	—	—	—	—	—	—	—	33 05 E.
1820.....	—	—	—	—	—	—	—	—	34 48
1830.....	—	—	—	—	—	—	—	—	35 56
1840.....	—	—	—	—	—	—	—	—	—
1850.....	—	—	—	—	—	—	—	—	36 32
1860.....	—	—	—	—	—	—	—	—	36 46
1870.....	—	—	—	—	—	—	—	—	36 46
1880.....	37 18 W.	39 10 W.	40 29 W.	44 56 W.	66 30 W.	54 36 W.	52 47 W.	9 00 W.	36 42
1890.....	36 23	38 08	39 05	43 32	64 12	53 30	52 09	8 11	36 44
1900.....	35 38	37 15	38 10	42 38	61 57	52 33	51 39	7 42	37 06
1905.....	35 22	36 54	37 52	42 20	61 02	52 09	51 27	7 36	37 16
1910.....	35 16	36 43	37 40	42 09	60 10	51 44	51 15	7 37	37 14
1915.....	35 08	36 33	37 28	41 57	59 24	51 20	51 04	7 45	36 58
1920.....	34 49	36 13	37 12	41 42	58 36	50 57	50 53	8 00	36 35
1925.....	34 26 W.	35 49 W.	36 48 W.	41 18 W.	57 48 W.	50 27 W.	50 37 W.	8 17 W.	36 11 E.
Annual change in 1925...	4'-8 E.	5'-0 E.	5'-2 E.	5'-2 E.	9'-6 E.	6'-3 E.	3'-5 E.	3'-5 W.	4'-9 W.

THE MARCH OF THE COMPASS IN CANADA

The March of the Compass in Canada—Concluded

Place:	N.W.T.	N.W.T.	N.W.T.	N.W.T.	N.W.T.	N.W.T.	N.W.T.	N.W.T.	N.W.T.
	Fort Smith	Fort Enterprise	Resolution	Fort Rae	Providence	Fort Confidence	Simpson	Fort Franklin	Wrigley
Longitude:	111° 53'	113° 06'	113° 40'	115° 49'	117° 39'	118° 42'	121° 21'	123° 26'	123° 37'
Latitude:	60 01	64 28	61 10	62 39	61 21	66 54	61 52	65 11	63 16
1750.....	—	—	—	—	—	—	—	—	—
1760.....	—	—	—	—	—	—	—	—	—
1770.....	—	—	—	—	—	—	—	—	—
1780.....	—	—	—	—	—	—	—	—	—
1790.....	—	—	—	—	—	—	—	—	—
1800.....	—	—	—	—	—	—	—	—	—
1810.....	—	—	—	—	—	—	—	—	—
1820.....	—	—	—	—	—	—	—	—	—
1830.....	28 09 E.	36 17 E.	34 28 E.	36 48 E.	34 17 E.	46 39 E.	36 21 E.	38 17 E.	38 07 E.
1840.....	31 00	38 45	37 00	39 00	36 27	47 58	37 14	39 27	39 00
1850.....	31 44	39 25	37 35	39 32	36 58	48 52	37 49	40 17	39 33
1860.....	32 08	39 47	37 52	39 49	37 14	49 36	38 07	40 49	39 52
1870.....	32 16	39 54	37 56	39 57	37 19	50 07	38 05	41 07	39 56
1880.....	32 12	39 59	37 55	39 58	37 21	50 21	37 52	41 17	39 49
1890.....	32 11	40 07	37 57	40 01	37 26	50 33	37 42	41 24	39 42
1900.....	32 34	40 27	38 02	40 23	37 54	50 45	37 37	41 30	39 39
1905.....	32 52	40 37	38 37	40 37	38 17	51 02	37 57	41 42	39 54
1910.....	33 00	40 39	38 46	40 47	38 36	51 12	38 14	41 51	40 07
1915.....	32 54	40 34	38 40	40 43	38 34	51 21	38 31	41 58	40 18
1920.....	32 35	40 25	38 23	40 33	38 20	51 28	38 32	42 05	40 21
1925.....	32 12 E.	40 15 E.	38 03 E.	40 19 E.	38 04 E.	51 33	38 22	42 09	40 17
Annual change in 1925	4° 8 W.	2° 1 W.	4° 2 W.	3° 0 W.	3° 3 W.	0° 5 E.	3° 3 W.	0° 3 E.	1° 8 W.

Place:	N.W.T.	N.W.T.	N.W.T.	N.W.T.	Y.T.	Y.T.	Y.T.	Y.T.
	Norman	Good Hope	Fort McPherson	Herschel Island	White Horse	Fort Selkirk	Dawson City	Porcupine River
Longitude:	125° 35'	128° 38'	134° 53'	138° 57'	135° 02'	137° 22'	139° 26'	139° 40'
Latitude:	64 51	66 15	67 27	69 33	60 44	62 47	64 04	67 43
1750.....	—	—	—	—	—	—	—	—
1760.....	—	—	—	—	—	—	—	—
1770.....	—	—	—	—	—	—	—	—
1780.....	—	—	—	—	—	—	—	—
1790.....	—	—	—	—	—	—	—	—
1800.....	—	—	—	—	—	—	—	—
1810.....	—	—	—	—	—	—	—	—
1820.....	—	—	—	—	—	—	—	—
1830.....	39 27 E.	41 48 E.	44 57 E.	46 14 E.	—	—	—	—
1840.....	40 21	42 12	45 21	46 12	—	—	—	—
1850.....	40 57	42 24	45 30	46 03	—	—	—	—
1860.....	41 21	42 27	45 30	45 45	—	—	—	—
1870.....	41 33	42 21	45 22	45 21	—	—	—	—
1880.....	41 33	42 06	45 08	44 48	—	—	—	—
1890.....	41 30	41 48	44 51	44 14	31 40 E.	33 46 E.	35 14 E.	37 50 E.
1900.....	41 27	41 32	44 36	43 36	31 54	33 50	35 10	37 30
1905.....	41 35	41 30	44 26	43 09	32 08	33 55	35 07	37 12
1910.....	41 41	41 33	44 22	42 57	32 14	33 57	35 05	37 04
1915.....	41 46	41 36	44 20	42 45	32 21	33 59	35 03	36 57
1920.....	41 50	41 39	44 17	42 37	32 26	34 01	35 02	36 52
1925.....	41 53	41 42	44 15	42 30	32 30	34 02	35 00	36 48
Annual change in 1925	0° 4 E.	0° 6 E.	0° 2 W.	1° 2 W.	0° 8 E.	0° 5 E.	0° 4 W.	0° 8 W.

THE DAILY VARIATION OF THE COMPASS IN CANADA

As already mentioned in the Introduction, the declination does not remain the same throughout the day, but changes more or less from hour to hour and by a different amount at different places.

During the night the declination differs very little from the average direction for the day, but in the early morning an easterly movement sets in, the extreme easterly position being reached between 7 and 9 a.m. This is followed by a westerly motion, the extreme westerly position being reached about 1 or 2 p.m. By 6 to 8 p.m. it is back again to the mean or average position.

Although the daily variation of the compass is caused by the sun, it is not yet clear just how the effect is produced. It is probably caused by some electrical emanation from the sun which produces a variation in the ionization of the upper atmosphere, with a resulting change in its conductivity and in the electric currents flowing about the earth. It is somewhat affected by local conditions, such as the presence of local disturbances.

While the daily variation of the compass ordinarily can be neglected for the class of work done with a compass, yet where as great accuracy as possible is desired, it should be taken into account; and for this reason tables are included for twenty-four stations in Canada and contiguous territories.

For individual days of ordinary character the departures from the daily average may be fifty per cent greater than the values given in the tables, and during a magnetic storm the daily variation of the compass not infrequently amounts to half a degree or more. The compass, therefore, should not be used during magnetic storms, which are generally indicated by an unsteady needle.

The Daily Variation of the Compass in Canada

Place:	Halifax, N.S.			Charlottetown, P.E.I.			Fredericton, N.B.			Bradore Harbour, Que.		
Longitude:	63° 35'			63° 07'			66° 38'			57° 14'		
Latitude:	44° 38'			46° 14'			45° 55'			51° 29'		
Local Mean Time	Jan. Feb. Nov. Dec.	Mar. April. Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April. Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April. Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April. Sept. Oct.	May June July Aug.
1 a.m.	0.2 E.	0.8 E.	0.4 E.	0.7 E.	1.2 E.	1.1 E.	0.3 E.	1.0 E.	0.6 E.	1.0 E.	1.5 E.	1.2 E.
2 "	0.1 W.	0.8 E.	0.3 E.	0.5 E.	1.2 E.	1.3 E.	0.3 E.	1.1 E.	0.7 E.	0.8 E.	1.5 E.	1.6 E.
3 "	0.3 E.	1.3 E.	0.6 E.	0.5 E.	1.5 E.	1.6 E.	0.4 E.	1.2 E.	1.2 E.	0.7 E.	1.7 E.	2.0 E.
4 "	0.6 E.	1.5 E.	1.0 E.	0.7 E.	1.7 E.	2.3 E.	0.7 E.	1.5 E.	1.9 E.	0.8 E.	2.0 E.	2.9 E.
5 "	1.0 E.	2.0 E.	2.6 E.	1.1 E.	2.2 E.	3.9 E.	1.0 E.	2.0 E.	3.6 E.	1.1 E.	2.2 E.	4.2 E.
6 "	1.3 E.	2.7 E.	4.7 E.	1.4 E.	2.8 E.	5.7 E.	1.5 E.	2.7 E.	5.7 E.	1.3 E.	2.8 E.	5.3 E.
7 "	1.5 E.	3.9 E.	6.0 E.	1.6 E.	4.0 E.	6.0 E.	1.8 E.	3.6 E.	6.5 E.	1.5 E.	3.8 E.	5.7 E.
8 "	2.1 E.	4.3 E.	6.1 E.	1.9 E.	4.6 E.	5.2 E.	2.4 E.	4.3 E.	6.1 E.	1.5 E.	4.6 E.	5.0 E.
9 "	2.4 E.	3.5 E.	4.1 E.	1.9 E.	3.9 E.	2.5 E.	2.5 E.	3.8 E.	3.6 E.	1.1 E.	3.7 E.	3.0 E.
10 "	1.2 E.	0.9 E.	0.5 E.	0.6 E.	1.0 E.	1.2 W.	1.0 E.	1.2 E.	0.4 W.	0.2 W.	0.8 E.	0.0
11 "	1.1 W.	2.2 W.	3.3 W.	1.5 W.	2.5 W.	4.8 W.	1.4 W.	2.2 W.	4.2 W.	2.0 W.	0.9 W.	3.6 W.
Noon	3.2 W.	5.0 W.	6.2 W.	3.4 W.	5.6 W.	7.1 W.	3.4 W.	4.9 W.	6.7 W.	3.4 W.	6.2 W.	6.7 W.
1 p.m.	3.8 W.	5.9 W.	6.5 W.	3.9 W.	6.8 W.	7.2 W.	4.1 W.	6.1 W.	7.1 W.	3.4 W.	7.7 W.	8.0 W.
2 "	3.4 W.	5.4 W.	5.8 W.	3.4 W.	6.3 W.	6.7 W.	3.6 W.	5.5 W.	6.6 W.	2.8 W.	6.9 W.	7.7 W.
3 "	2.2 W.	3.7 W.	4.0 W.	2.3 W.	4.4 W.	4.9 W.	2.4 W.	3.8 W.	4.9 W.	2.2 W.	4.8 W.	5.8 W.
4 "	1.1 W.	2.1 W.	2.3 W.	1.3 W.	2.6 W.	2.9 W.	1.4 W.	2.1 W.	2.8 W.	1.4 W.	2.8 W.	3.6 W.
5 "	0.2 W.	0.7 W.	0.8 W.	0.5 W.	1.1 W.	1.1 W.	0.8 W.	0.8 W.	1.0 W.	0.7 W.	1.3 W.	1.6 W.
6 "	0.1 E.	0.0	0.4 E.	0.1 W.	0.2 W.	0.3 E.	0.1 W.	0.2 W.	0.1 E.	0.3 W.	0.3 W.	0.0
7 "	0.6 E.	0.2 E.	0.6 E.	0.4 E.	0.2 E.	0.8 E.	0.4 E.	0.3 E.	0.5 E.	0.2 E.	0.3 E.	0.7 E.
8 "	0.8 E.	0.5 E.	0.3 E.	0.8 E.	0.6 E.	0.9 E.	0.8 E.	0.5 E.	0.3 E.	0.7 E.	0.8 E.	1.0 E.
9 "	0.9 E.	0.7 E.	0.4 E.	1.1 E.	1.0 E.	1.0 E.	1.0 E.	0.8 E.	0.4 E.	1.2 E.	1.3 E.	1.0 E.
10 "	0.9 E.	0.6 E.	0.4 E.	1.3 E.	1.1 E.	1.0 E.	1.0 E.	0.8 E.	0.4 E.	1.6 E.	1.6 E.	1.1 E.
11 "	0.7 E.	0.7 E.	0.3 E.	1.2 E.	1.3 E.	1.0 E.	0.9 E.	0.9 E.	0.4 E.	1.7 E.	1.9 E.	1.1 E.
Midnight	0.3 E.	0.6 E.	0.3 E.	0.9 E.	1.2 E.	1.0 E.	0.4 E.	0.6 E.	0.5 E.	1.4 E.	1.8 E.	1.1 E.

The Daily Variation of the Compass in Canada—Continued

Place:	Seven Islands, Que.			Montreal, Que.			Rupert House, Que.			White Whale Pt., Que.		
Longitude:	66° 22'			73° 35'			78° 43'			77° 30'		
Latitude:	50° 10'			45° 30'			51° 30'			57° 00'		
Local Mean Time	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.
1 a.m.	0.8 E.	1.5 E.	1.6 E.	0.2 E.	0.9 E.	0.8 E.	1.4 E.	1.7 E.	1.4 E.	0.3 E.	1.9 E.	1.5 E.
2 "	0.7 E.	1.5 E.	1.9 E.	0.2 E.	1.0 E.	0.9 E.	1.1 E.	1.7 E.	1.9 E.	0.5 E.	2.3 E.	2.1 E.
3 "	0.7 E.	1.8 E.	2.3 E.	0.2 E.	1.4 E.	0.9 E.	0.9 E.	2.1 E.	2.5 E.	1.1 E.	2.9 E.	2.5 E.
4 "	0.8 E.	2.1 E.	3.2 E.	0.2 E.	1.7 E.	2.4 E.	0.9 E.	2.4 E.	3.5 E.	1.5 E.	3.4 E.	4.0 E.
5 "	1.1 E.	2.5 E.	4.7 E.	1.1 E.	2.2 E.	3.7 E.	1.2 E.	2.6 E.	5.4 E.	1.8 E.	4.1 E.	6.1 E.
6 "	1.4 E.	3.1 E.	6.3 E.	1.1 E.	3.0 E.	5.6 E.	1.5 E.	3.3 E.	7.1 E.	2.0 E.	5.0 E.	8.3 E.
7 "	1.6 E.	4.0 E.	6.2 E.	1.6 E.	4.1 E.	6.4 E.	1.7 E.	4.1 E.	7.7 E.	2.4 E.	5.9 E.	9.6 E.
8 "	1.8 E.	4.7 E.	4.7 E.	2.2 E.	4.7 E.	5.9 E.	2.0 E.	6.1 E.	7.4 E.	2.9 E.	5.8 E.	8.8 E.
9 "	1.6 E.	3.6 E.	1.6 E.	2.3 E.	3.7 E.	3.4 E.	1.7 E.	5.5 E.	5.3 E.	2.3 E.	3.7 E.	5.8 E.
10 "	0.2 E.	0.7 E.	2.3 W.	0.9 E.	1.0 E.	0.4 W.	0.3 E.	2.3 E.	1.4 E.	0.2 E.	0.1 W.	0.3 E.
11 "	1.9 W.	3.0 W.	5.8 W.	1.0 W.	2.3 W.	4.1 W.	1.9 W.	2.3 W.	3.6 W.	2.1 W.	4.3 W.	5.4 W.
Noon	3.5 W.	6.1 W.	7.6 W.	3.1 W.	5.3 W.	6.4 W.	3.7 W.	6.6 W.	7.7 W.	4.4 W.	7.3 W.	9.3 W.
1 p.m.	4.0 W.	7.4 W.	7.8 W.	3.7 W.	6.3 W.	7.0 W.	4.6 W.	8.7 W.	9.9 W.	5.4 W.	8.7 W.	11.3 W.
2 "	3.5 W.	6.7 W.	7.3 W.	3.7 W.	5.7 W.	6.4 W.	4.1 W.	8.3 W.	9.8 W.	5.1 W.	8.2 W.	10.8 W.
3 "	2.4 W.	4.8 W.	5.5 W.	2.2 W.	4.1 W.	4.8 W.	2.8 W.	6.0 W.	7.7 W.	3.7 W.	6.7 W.	8.6 W.
4 "	1.4 W.	2.8 W.	3.2 W.	1.2 W.	2.4 W.	2.8 W.	1.7 W.	3.5 W.	5.1 W.	2.0 W.	4.4 W.	5.7 W.
5 "	0.6 W.	1.2 W.	1.2 W.	0.5 W.	1.0 W.	1.0 W.	1.0 W.	1.7 W.	2.6 W.	0.1 W.	2.4 W.	3.2 W.
6 "	0.3 W.	0.2 W.	0.2 E.	0.1 W.	0.2 W.	0.0	0.5 W.	0.8 W.	0.8 W.	0.9 E.	0.7 W.	0.9 W.
7 "	0.5 E.	0.3 E.	1.0 E.	0.5 E.	0.1 E.	0.5 E.	0.1 E.	0.2 W.	0.2 E.	1.5 E.	0.4 E.	0.4 E.
8 "	0.9 E.	0.7 E.	1.1 E.	0.8 E.	0.4 E.	0.3 E.	0.8 E.	0.5 E.	0.4 E.	1.5 E.	0.9 E.	0.6 E.
9 "	1.2 E.	1.2 E.	1.1 E.	0.9 E.	0.7 E.	0.4 E.	1.4 E.	1.0 E.	0.4 E.	1.4 E.	1.2 E.	0.8 E.
10 "	1.3 E.	1.3 E.	1.2 E.	1.0 E.	0.7 E.	0.4 E.	1.8 E.	1.5 E.	0.6 E.	1.0 E.	1.2 E.	1.0 E.
11 "	1.4 E.	1.6 E.	1.3 E.	0.8 E.	0.8 E.	0.5 E.	1.8 E.	1.8 E.	0.8 E.	1.1 E.	1.7 E.	1.5 E.
Midnight	1.1 E.	1.5 E.	1.5 E.	0.5 E.	0.7 E.	0.6 E.	1.6 E.	1.9 E.	0.9 E.	0.9 E.	2.1 E.	1.8 E.

Place:	Ottawa, Ont.			Agincourt, Ont.			Moose Factory, Ont.			Kenora Ont.		
Longitude:	75° 42'			79° 16'			80° 40'			94° 26'		
Latitude:	45° 25'			43° 47'			51° 15'			49° 46'		
Local Mean Time	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.
1 a.m.	0.3 E.	0.9 E.	0.7 E.	0.1 W.	0.2 E.	0.2 E.	1.5 E.	1.8 E.	1.4 E.	1.3 E.	0.8 E.	0.6 E.
2 "	0.3 E.	1.0 E.	0.9 E.	0.1 W.	0.6 E.	0.3 E.	1.2 E.	1.8 E.	1.9 E.	1.0 E.	0.9 E.	1.2 E.
3 "	0.4 E.	1.4 E.	1.1 E.	0.2 E.	1.0 E.	0.5 E.	0.9 E.	2.2 E.	2.5 E.	0.7 E.	1.2 E.	1.6 E.
4 "	0.6 E.	1.7 E.	2.2 E.	0.4 E.	1.2 E.	1.3 E.	0.9 E.	2.5 E.	3.6 E.	0.6 E.	1.3 E.	2.4 E.
5 "	1.0 E.	2.1 E.	3.8 E.	0.8 E.	1.8 E.	3.0 E.	1.2 E.	2.7 E.	5.5 E.	0.5 E.	1.5 E.	3.7 E.
6 "	1.2 E.	3.0 E.	5.7 E.	1.0 E.	2.7 E.	5.0 E.	1.5 E.	3.4 E.	7.2 E.	0.4 E.	1.9 E.	5.4 E.
7 "	1.5 E.	4.2 E.	6.7 E.	1.4 E.	3.9 E.	6.3 E.	1.7 E.	4.8 E.	8.0 E.	0.8 E.	3.1 E.	6.6 E.
8 "	2.2 E.	5.0 E.	6.5 E.	2.3 E.	4.7 E.	6.4 E.	2.0 E.	6.4 E.	7.7 E.	1.2 E.	5.1 E.	7.1 E.
9 "	2.3 E.	4.3 E.	4.3 E.	2.7 E.	4.0 E.	4.6 E.	1.7 E.	5.9 E.	5.6 E.	1.5 E.	5.6 E.	6.3 E.
10 "	1.1 E.	1.6 E.	0.6 E.	1.6 E.	1.7 E.	1.1 E.	0.3 E.	2.6 E.	1.7 E.	1.0 E.	3.9 E.	3.7 E.
11 "	1.1 W.	1.9 W.	3.4 W.	0.5 W.	1.4 W.	2.7 W.	1.9 W.	2.2 W.	3.3 W.	0.3 W.	0.6 E.	0.3 E.
Noon	3.0 W.	5.2 W.	6.3 W.	2.4 W.	4.3 W.	5.4 W.	3.8 W.	6.7 W.	7.7 W.	2.3 W.	3.0 W.	4.0 W.
1 p.m.	3.7 W.	6.5 W.	7.4 W.	3.1 W.	5.4 W.	6.4 W.	4.7 W.	9.0 W.	10.1 W.	2.9 W.	5.3 W.	6.3 W.
2 "	3.2 W.	6.0 W.	7.0 W.	3.0 W.	5.1 W.	6.0 W.	4.2 W.	8.6 W.	10.0 W.	2.7 W.	5.6 W.	6.8 W.
3 "	2.3 W.	4.4 W.	5.4 W.	2.1 W.	3.7 W.	4.6 W.	2.9 W.	6.2 W.	8.0 W.	2.1 W.	4.3 W.	6.0 W.
4 "	1.3 W.	2.6 W.	3.3 W.	1.2 W.	2.2 W.	2.8 W.	1.8 W.	3.7 W.	5.3 W.	1.3 W.	3.0 W.	4.6 W.
5 "	0.7 W.	1.2 W.	1.3 W.	0.6 W.	1.0 W.	0.9 W.	1.1 W.	1.8 W.	2.9 W.	1.0 W.	1.9 W.	3.1 W.
6 "	0.2 W.	0.5 W.	0.2 W.	0.1 W.	0.4 W.	0.1 W.	0.6 W.	0.9 W.	1.0 W.	0.7 W.	1.4 W.	2.0 W.
7 "	0.4 E.	0.1 W.	0.3 E.	0.4 E.	0.1 W.	0.2 E.	0.0	0.3 W.	0.0	0.3 W.	1.1 W.	1.5 W.
8 "	0.7 E.	0.3 E.	0.2 E.	0.6 E.	0.1 E.	0.0	0.8 E.	0.4 E.	0.3 E.	0.2 E.	0.9 W.	1.4 W.
9 "	0.9 E.	0.6 E.	0.3 E.	0.7 E.	0.3 E.	0.1 E.	1.5 E.	1.0 E.	0.3 E.	0.8 E.	0.4 W.	1.2 W.
10 "	1.1 E.	0.7 E.	0.4 E.	0.7 E.	0.4 E.	0.1 E.	1.9 E.	1.5 E.	0.5 E.	1.2 E.	0.2 W.	0.8 W.
11 "	0.9 E.	0.8 E.	0.6 E.	0.5 E.	0.3 E.	0.2 E.	1.9 E.	1.8 E.	0.7 E.	1.3 E.	0.2 E.	0.5 W.
Midnight	0.6 E.	0.8 E.	0.6 E.	0.1 E.	0.3 E.	0.1 E.	1.7 E.	2.0 E.	0.8 E.	1.3 E.	0.7 E.	0.2 W.

The Daily Variation of the Compass in Canada—Continued

Place:	Winnipeg, Man.			York Factory, Man.			Regina, Sask.			South End, Sask.		
Longitude:	97° 01'			92° 18'			101° 33'			103° 15'		
Latitude:	49° 52'			57° 00'			50° 26'			53° 20'		
Local Mean Time	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.
1 a.m.	1.2 E.	0.6 E.	0.4 E.	0.1 W.	0.6 E.	0.3 W.	1.0 E.	0.5 E.	0.1 E.	0.2 W.	0.1 E.	0.7 W.
2 "	0.9 E.	0.7 E.	1.0 E.	0.2 E.	0.9 E.	0.1 E.	0.7 E.	0.6 E.	0.7 E.	0.1 E.	0.3 E.	0.5 W.
3 "	0.6 E.	1.0 E.	1.4 E.	0.7 E.	1.6 E.	0.7 E.	0.5 E.	0.8 E.	1.1 E.	0.4 E.	0.8 E.	0.1 E.
4 "	0.5 E.	1.1 E.	2.1 E.	1.1 E.	2.5 E.	3.0 E.	0.5 E.	0.9 E.	1.8 E.	0.7 E.	1.5 E.	1.9 E.
5 "	0.4 E.	1.2 E.	3.4 E.	1.6 E.	3.9 E.	6.4 E.	0.4 E.	1.1 E.	3.1 E.	1.1 E.	2.8 E.	4.8 E.
6 "	0.3 E.	1.6 E.	5.0 E.	2.1 E.	5.9 E.	10.5 E.	0.3 E.	1.4 E.	4.7 E.	1.7 E.	4.5 E.	8.2 E.
7 "	0.6 E.	2.8 E.	6.3 E.	3.1 E.	8.2 E.	13.7 E.	0.5 E.	2.7 E.	6.0 E.	2.4 E.	6.6 E.	11.0 E.
8 "	1.0 E.	4.8 E.	7.0 E.	4.5 E.	9.9 E.	14.9 E.	1.0 E.	4.5 E.	6.7 E.	3.6 E.	8.3 E.	12.4 E.
9 "	1.5 E.	5.5 E.	6.4 E.	4.9 E.	8.9 E.	13.0 E.	1.6 E.	5.3 E.	6.3 E.	4.2 E.	7.9 E.	11.4 E.
10 "	1.1 E.	4.2 E.	4.1 E.	3.2 E.	5.1 E.	7.4 E.	1.3 E.	4.2 E.	4.3 E.	3.5 E.	5.2 E.	7.3 E.
11 "	0.0	1.2 E.	1.0 E.	0.4 E.	0.2 W.	0.5 W.	0.3 E.	1.6 E.	1.2 E.	1.2 E.	1.1 E.	1.1 E.
Noon	1.5 W.	2.3 W.	3.2 W.	2.3 W.	4.8 W.	6.8 W.	1.2 W.	1.6 W.	2.5 W.	1.6 W.	2.8 W.	4.2 W.
1 p.m.	2.5 W.	4.6 W.	5.5 W.	4.3 W.	7.7 W.	11.0 W.	2.1 W.	3.8 W.	4.7 W.	2.8 W.	5.3 W.	7.3 W.
2 "	2.4 W.	5.0 W.	6.2 W.	5.2 W.	8.8 W.	12.5 W.	2.1 W.	4.3 W.	5.5 W.	3.8 W.	6.5 W.	9.5 W.
3 "	1.7 W.	3.9 W.	5.6 W.	4.8 W.	8.3 W.	12.1 W.	1.6 W.	3.5 W.	5.2 W.	3.7 W.	6.4 W.	9.7 W.
4 "	1.2 W.	2.8 W.	4.4 W.	3.8 W.	6.9 W.	10.0 W.	1.2 W.	2.6 W.	4.2 W.	3.2 W.	5.7 W.	8.4 W.
5 "	1.0 W.	1.9 W.	3.2 W.	2.3 W.	5.1 W.	7.3 W.	1.0 W.	1.9 W.	3.2 W.	2.2 W.	4.5 W.	6.5 W.
6 "	0.7 W.	1.5 W.	2.2 W.	1.1 W.	3.3 W.	4.3 W.	0.7 W.	1.5 W.	2.3 W.	1.3 W.	3.4 W.	4.0 W.
7 "	0.4 W.	1.3 W.	1.8 W.	0.1 W.	1.8 W.	2.0 W.	0.5 W.	1.4 W.	1.8 W.	0.5 W.	1.9 W.	2.1 W.
8 "	0.1 E.	1.0 W.	1.6 W.	0.3 E.	1.0 W.	1.0 W.	0.0	1.2 W.	1.7 W.	0.1 W.	1.3 W.	1.2 W.
9 "	0.7 E.	0.7 W.	1.4 W.	0.4 E.	0.4 W.	0.7 W.	0.5 E.	0.9 W.	1.6 W.	0.1 E.	0.7 W.	1.0 W.
10 "	1.0 E.	0.4 W.	1.1 W.	0.2 E.	0.3 W.	0.6 W.	0.7 E.	0.7 W.	1.3 W.	0.1 W.	0.7 W.	0.9 W.
11 "	1.1 E.	0.1 W.	0.8 W.	0.2 E.	0.1 W.	0.4 W.	0.9 E.	0.4 W.	1.1 W.	0.0	0.4 W.	0.8 W.
Midnight	1.2 E.	0.4 E.	0.4 W.	0.4 E.	0.4 E.	0.4 W.	1.0 E.	0.2 E.	0.7 W.	0.2 E.	0.2 W.	0.9 W.

Place:	Calgary, Alta.			Meanook, Alta.			McMurray, Alta.			Vancouver, B.C.		
Longitude:	113° 57'			113° 20'			111° 23'			123° 07'		
Latitude:	51° 07'			54° 37'			56° 44'			49° 18'		
Local Mean Time	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.
1 a.m.	0.7 E.	0.3 E.	0.2 W.	0.2 W.	0.3 W.	1.1 W.	0.2 W.	0.4 W.	1.2 W.	0.7 E.	0.3 E.	0.0
2 "	0.6 E.	0.4 E.	0.3 E.	0.1 W.	0.1 E.	0.9 W.	0.1 W.	0.3 W.	1.1 W.	0.6 E.	0.4 E.	0.5 E.
3 "	0.4 E.	0.5 E.	0.7 E.	0.3 E.	0.3 E.	0.5 W.	0.1 E.	0.0	0.6 W.	0.4 E.	0.5 E.	0.7 E.
4 "	0.4 E.	0.7 E.	1.4 E.	0.7 E.	0.7 E.	1.1 E.	0.3 E.	0.5 E.	0.7 E.	0.2 E.	0.6 E.	1.2 E.
5 "	0.3 E.	0.9 E.	2.7 E.	0.9 E.	1.6 E.	3.9 E.	0.6 E.	1.7 E.	3.1 E.	0.1 E.	0.6 E.	2.0 E.
6 "	0.2 E.	1.2 E.	4.3 E.	1.1 E.	3.0 E.	6.7 E.	1.2 E.	3.1 E.	5.8 E.	0.1 E.	0.7 E.	3.1 E.
7 "	0.3 E.	2.5 E.	5.7 E.	1.7 E.	4.8 E.	8.4 E.	1.7 E.	4.9 E.	8.3 E.	0.1 E.	1.7 E.	4.2 E.
8 "	1.0 E.	4.2 E.	6.4 E.	2.7 E.	6.0 E.	9.1 E.	2.6 E.	6.6 E.	9.8 E.	0.5 E.	3.2 E.	4.9 E.
9 "	1.6 E.	5.0 E.	6.2 E.	2.9 E.	6.0 E.	8.3 E.	3.4 E.	6.8 E.	9.8 E.	1.1 E.	4.0 E.	4.8 E.
10 "	1.5 E.	4.2 E.	4.5 E.	2.2 E.	4.4 E.	5.9 E.	2.8 E.	5.2 E.	7.2 E.	1.1 E.	3.4 E.	3.5 E.
11 "	0.5 E.	1.9 E.	1.4 E.	0.7 E.	1.8 E.	1.6 E.	1.5 E.	2.3 E.	2.7 E.	0.4 E.	1.6 E.	1.2 E.
Noon	0.8 W.	0.9 W.	1.7 W.	0.9 W.	1.0 W.	2.5 W.	0.0	0.7 W.	1.6 W.	0.6 W.	0.7 W.	1.3 W.
1 p.m.	1.7 W.	2.9 W.	3.9 W.	2.1 W.	3.1 W.	5.2 W.	1.3 W.	2.9 W.	4.6 W.	1.3 W.	2.4 W.	3.0 W.
2 "	1.7 W.	3.5 W.	4.8 W.	2.7 W.	3.9 W.	6.3 W.	2.3 W.	4.1 W.	6.4 W.	1.4 W.	2.8 W.	3.7 W.
3 "	1.5 W.	3.0 W.	4.7 W.	2.4 W.	3.9 W.	6.2 W.	2.5 W.	4.5 W.	7.3 W.	1.0 W.	2.3 W.	3.6 W.
4 "	1.1 W.	2.3 W.	3.9 W.	1.9 W.	3.4 W.	5.3 W.	2.5 W.	4.4 W.	6.8 W.	0.7 W.	1.7 W.	3.0 W.
5 "	0.9 W.	1.8 W.	3.1 W.	1.4 W.	2.8 W.	4.0 W.	2.0 W.	3.8 W.	5.6 W.	0.6 W.	1.3 W.	2.4 W.
6 "	0.7 W.	1.6 W.	2.4 W.	1.0 W.	2.4 W.	3.0 W.	1.4 W.	3.4 W.	3.8 W.	0.5 W.	1.2 W.	1.8 W.
7 "	0.5 W.	1.4 W.	1.9 W.	0.5 W.	1.8 W.	2.0 W.	0.8 W.	2.0 W.	2.2 W.	0.4 W.	1.1 W.	1.6 W.
8 "	0.1 W.	1.3 W.	1.8 W.	0.0	1.5 W.	1.7 W.	0.4 W.	1.5 W.	1.5 W.	0.1 W.	1.0 W.	1.5 W.
9 "	0.3 E.	1.0 W.	1.7 W.	0.0	1.4 W.	1.7 W.	0.3 W.	1.1 W.	1.2 W.	0.2 E.	0.7 W.	1.4 W.
10 "	0.4 E.	0.9 W.	1.5 W.	0.1 W.	1.2 W.	1.7 W.	0.3 W.	1.0 W.	1.2 W.	0.4 E.	0.6 W.	1.2 W.
11 "	0.6 E.	0.6 W.	1.3 W.	0.1 W.	1.2 W.	1.5 W.	0.2 W.	0.9 W.	1.3 W.	0.6 E.	0.4 W.	1.0 W.
Midnight	0.7 E.	0.2 W.	0.9 W.	0.2 W.	0.9 W.	1.3 W.	0.1 W.	0.7 W.	1.4 W.	0.7 E.	0.0	0.6 W.

The Daily Variation of the Compass in Canada—Concluded

Place:	Nain, Labrador			Fort Rae, N.W.T.			Aklavik, N.W.T.			Sitka, Alaska		
Longitude:	61° 41'			115° 49'			134° 59'			135° 20'		
Latitude:	56° 33'			62° 39'			68° 13'			57° 03'		
Local Mean Time	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.	Jan. Feb. Nov. Dec.	Mar. April Sept. Oct.	May June July Aug.
1 a.m.	0.3 E.	1.7 E.	1.7 F.	3.3 W.	4.6 W.	4.0 W.	—	—	—	0.2 W.	0.2 W.	0.9 W.
2 "	0.4 E.	2.1 E.	2.2 F.	0.4 E.	1.6 W.	2.1 W.	—	—	—	0.1 W.	0.2 W.	0.7 W.
3 "	0.8 E.	2.5 E.	2.4 E.	1.4 E.	2.9 E.	0.5 E.	—	—	—	0.1 E.	0.1 E.	0.4 W.
4 "	1.2 E.	2.8 E.	3.2 E.	2.9 E.	2.3 E.	2.7 E.	—	—	—	0.2 E.	0.4 E.	0.9 E.
5 "	1.4 E.	3.1 E.	4.3 E.	6.1 E.	6.6 E.	9.7 E.	—	—	—	0.4 E.	1.0 E.	2.6 E.
6 "	1.4 E.	3.4 E.	5.5 E.	10.4 E.	11.1 E.	14.7 E.	—	—	—	0.6 E.	2.1 E.	4.5 E.
7 "	1.7 E.	3.7 E.	5.9 E.	9.7 E.	13.0 E.	18.3 E.	13.1 E.	19.5 E.	24.4 E.	1.1 E.	3.4 E.	6.1 E.
8 "	1.9 E.	3.2 E.	4.9 E.	8.2 E.	14.2 E.	17.2 E.	9.2 E.	16.4 E.	23.0 E.	1.7 E.	4.6 E.	7.1 E.
9 "	1.4 E.	1.3 F.	2.3 E.	8.5 E.	11.9 E.	15.4 E.	7.6 E.	11.4 E.	15.6 E.	1.9 E.	4.6 E.	6.7 E.
10 "	0.2 W.	1.5 W.	1.8 W.	5.4 E.	8.1 E.	11.9 E.	4.5 E.	5.9 E.	9.7 E.	1.5 E.	3.4 E.	4.7 E.
11 "	2.1 W.	4.4 W.	5.4 W.	2.5 E.	3.1 E.	5.9 E.	0.6 W.	1.1 W.	0.4 W.	0.6 E.	1.5 E.	1.2 E.
Noon.....	3.6 W.	6.2 W.	7.6 W.	0.9 W.	1.3 W.	1.3 W.	4.4 W.	6.4 W.	8.5 W.	0.2 W.	0.6 W.	1.8 W.
1 p.m.	4.2 W.	6.7 W.	8.4 W.	2.6 W.	5.4 W.	6.9 W.	5.6 W.	6.7 W.	8.4 W.	1.0 W.	2.2 W.	3.6 W.
2 "	3.9 W.	6.0 W.	7.5 W.	6.5 W.	7.0 W.	8.3 W.	5.0 W.	7.9 W.	11.8 W.	1.5 W.	3.0 W.	4.8 W.
3 "	2.7 W.	4.6 W.	5.6 W.	6.3 W.	8.2 W.	9.5 W.	6.9 W.	9.4 W.	13.1 W.	1.6 W.	3.2 W.	5.3 W.
4 "	1.3 W.	2.6 W.	3.1 W.	4.4 W.	6.8 W.	8.9 W.	6.2 W.	9.9 W.	13.8 W.	1.4 W.	3.0 W.	4.8 W.
5 "	0.1 E.	1.1 W.	1.2 W.	5.2 W.	6.5 W.	7.7 W.	5.9 W.	11.6 W.	17.0 W.	1.1 W.	2.5 W.	3.7 W.
6 "	0.9 E.	0.3 E.	0.3 E.	4.8 W.	5.9 W.	7.9 W.	—	—	—	0.6 W.	1.9 W.	2.3 W.
7 "	1.2 E.	0.9 E.	1.0 E.	4.4 W.	5.5 W.	7.8 W.	—	—	—	0.2 W.	1.3 W.	1.2 W.
8 "	1.3 E.	1.2 E.	1.0 E.	4.0 W.	5.3 W.	6.1 W.	—	—	—	0.0	0.9 W.	0.8 W.
9 "	1.2 E.	1.4 E.	1.0 E.	2.5 W.	4.5 W.	5.3 W.	—	—	—	0.1 W.	0.6 W.	0.8 W.
10 "	0.9 E.	1.3 E.	1.2 E.	3.6 W.	5.3 W.	6.2 W.	—	—	—	0.1 W.	0.7 W.	0.9 W.
11 "	0.7 E.	1.7 E.	1.6 E.	3.3 W.	3.0 W.	6.1 W.	—	—	—	0.1 W.	0.5 W.	0.8 W.
Midnight.....	0.7 E.	2.1 E.	2.0 E.	3.9 W.	2.8 W.	7.7 W.	—	—	—	0.0	0.4 W.	0.9 W.

The results for Agincourt, Ont., were derived from the publications of the Meteorological Service of Canada, for the five international quiet days each month for the nine-year period 1911 to 1919.

The results for Meanook, Alberta, were derived from measurements made by this Survey of the Magnetograms of the Meteorological Service of Canada for quiet intervals during the period 1916-5 to 1921-5.

The results for Sitka, Alaska, are those published in Special Publication No. 90 of the United States Coast and Geodetic Survey.

The results for Aklavik, N.W.T., were obtained from observations made by this Survey during the winter of 1922-23.

The results for Fort Rae, N.W.T., were derived from observations made by Capt. H. P. Dawson, R.A., 1882-83.

The results for all other stations were computed by this Survey from the following data for five international quiet days each month:—

Values of D and X published in "Greenwich Magnetical and Meteorological Observations," by the Astronomer Royal for the nine-year period 1915-23.

Values of X and Y published by the United States Coast and Geodetic Survey for their observatory at Sitka, Alaska, for the eleven-year period 1902-12.

Values of X and Y published by the Meteorological Service of Canada for their observatory at Agincourt, Ontario, for the nine-year period 1911-19.

